

Exhibit 12

G.P. Allaway et al., U.S. Serial No. 09/724,105, filed November 28, 2000

Pending claims:

1. A polypeptide having a sequence corresponding to the sequence of a portion of a chemokine receptor and capable of inhibiting the fusion of HIV-1 to CD4<sup>+</sup> cells and thus of inhibiting HIV-1 infection of the cells.
6. A polypeptide having a sequence corresponding to that of a portion of a HIV-1 envelope glycoprotein capable of specifically binding to the chemokine receptor CCR5.
8. A pharmaceutical composition comprising an effective amount of the polypeptide of claim 6 effective to inhibit the fusion of HIV-1 to CD4<sup>+</sup> cells and a pharmaceutically acceptable carrier.
9. An antibody or a portion of an antibody capable of binding to a chemokine receptor on a CD4<sup>+</sup> cell and inhibiting HIV-1 infection of the cell.
11. A method of treating an HIV-1 infected subject which comprises administering to the subject the polypeptide of claim 1 in an amount effective to inhibit the fusion of HIV-1 to CD4<sup>+</sup> cells of the subject and thus treat the subject.
13. A method for inhibiting HIV-1 infection of CD4<sup>+</sup> cells which comprises contacting such CD4<sup>+</sup> cells with a non-chemokine agent capable of binding to the chemokine receptor CCR5 in an amount and under conditions such that fusion of HIV-1 to the CD4<sup>+</sup> cells is inhibited, thereby inhibiting HIV-1 infection of the cells.
17. A non-chemokine agent capable of binding to the chemokine receptor CCR5 and inhibiting the fusion of HIV-1 to CD4<sup>+</sup> cells.

19. A molecule capable of binding to the chemokine receptor CCR5 and inhibiting fusion of HIV-1 to CD4<sup>+</sup> cells comprising a non-chemokine agent linked to a ligand capable of binding to a cell surface receptor of the CD4<sup>+</sup> cells other than the chemokine receptor such that the binding of the non-chemokine agent to the chemokine receptor does not prevent the binding of the ligand to the other receptor.
22. A molecule capable of binding to the chemokine receptor CCR5 and inhibiting fusion of HIV-1 to CD4<sup>+</sup> cells comprising a non-chemokine agent linked to a compound capable of increasing the *in vivo* half-life of the non-chemokine agent.
26. A method for treating HIV-1 infection in a subject comprising administering the pharmaceutical composition of claim 19 to the subject.
27. A method for determining whether a non-chemokine agent is capable of inhibiting the fusion of HIV-1 to a CD4<sup>+</sup>, CCR5<sup>+</sup> cell which comprises:
  - (a) contacting the CD4<sup>+</sup>, CCR5<sup>+</sup> cell, after it is labeled with a first dye, with a cell expressing an appropriate HIV-1 envelope glycoprotein on its surface, and labeled with a second dye, in the presence of an excess of the agent under conditions permitting fusion of the CD4<sup>+</sup>, CCR5<sup>+</sup> cell to the cell expressing the HIV-1 envelope glycoprotein on its surface in the absence of an agent known to inhibit fusion of HIV-1 to CD4<sup>+</sup>, CCR5<sup>+</sup> cells, the first and second dyes being selected so as to allow resonance energy transfer between the dyes;
  - (b) exposing the product of step (a) to conditions which would result in resonance energy transfer if fusion has occurred; and

- (c) determining whether there is resonance energy transfer, the absence or reduction of transfer indicating that the agent is capable of inhibiting fusion of HIV-1 to CD4<sup>+</sup> and CCR5<sup>+</sup> cells.
31. A transgenic nonhuman animal which comprises an isolated DNA molecule encoding the chemokine receptor CCR5.
36. An agent capable of inhibiting HIV-1 infection and capable of binding to a chemokine receptor without substantially affecting the said chemokine receptor's capability to bind to chemokines.
43. A method for inhibiting HIV-1 infection of CD4<sup>+</sup> cells which comprises contacting such CD4<sup>+</sup> cells with an agent capable of inhibiting HIV-1 infection and capable of binding to a chemokine receptor without substantially affecting the said chemokine receptor's capability to bind to chemokines.
48. A method for treating HIV-1 infection in a subject comprising administering the pharmaceutical composition of claim 42 to the subject, so as to thereby treat HIV-1 infection in the subject.